A JUVENILE SHARKSUCKER, *ECHENEIS NAUCRATES* (ECHENEIDAE), ACTING AS A STATION-BASED CLEANER FISH

by

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ABSTRACT. - Sharksuckers (Echeneidae) may act as cleaners of several species of reef fishes, but live attached to their hosts instead of tending cleaning stations as do many reef-based cleaner fishes. In a reef off northern Brazil, we recorded a juvenile sharksucker, *Echeneis naucrates*, tending a cleaning station where it cleaned posing parrotfishes, *Sparisoma* aff. *viride*.

RÉSUMÉ. - Un Echeneidae juvénile, *Echeneis naucrates*, agissant comme station de nettoyage fixe.

Les Echeneidae peuvent être des nettoyeurs de plusieurs espèces de poissons des récifs mais ils vivent fixés à leurs hôtes au lieu de tenir des stations de nettoyage comme le font de nombreux nettoyeurs de poissons des récifs. Dans un récif au nord du Brésil, nous avons trouvé un juvénile d'*Echeneis naucrates* tenant une station de nettoyage fixe pour des poissons perroquets, *Sparisoma* aff. *viride*.

Key-words. - Echeneidae, *Echeneis naucrates*, Sharksucker, ASW, Northern Brazil, Cleaning symbiosis, Cleaning station.

Cleaning symbiosis in reef fishes is an interspecific interaction in which a fish (the cleaner) obtains food from the body of cooperative fishes (the clients) which, in turn, are rid of ectoparasites and receive tactile stimulation (Losey, 1971, 1987). Many adult reef-based cleaner fishes tend cleaning stations situated on conspicuous portions of the reef, where clients seek their services (Feder, 1966; Losey, 1987). Remoras and sharksuckers (Echeneidae) are known to feed occasionally on external parasites and to act as cleaners of several species of large reef fishes including sharks, devil rays, jacks, groupers, barracudas, and trunkfish (Cressey and Lachner, 1970; Böhlke and Chaplin, 1993). However, even if they are occasionally free-swimming (Randall, 1962, 1967; Cressey and Lachner, 1970) echeneids live attached to their hosts instead of tending cleaning stations, this latter behaviour being usual for most reef-based cleaner fishes (Gorlick *et al.*, 1972; Potts, 1973; Losey, 1987). We report herein on a juvenile sharksucker, *Echeneis naucrates*, tending a cleaning station on a reef where it cleaned its posing fish clients.

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MATERIAL AND METHODS

Study site

Our records were made at the Manoel Luís Reefs (00°52'S, 44°15'W), off the coast of Maranhão, northern Brazil, in July 1998. The reef consists of approximately circular pinnacles, which rise from a 25-30 m depth to near the surface. Superimposed coralline algal crusts build up the frame of the reef, which is sparsely covered by scleractinian corals (Moura *et al.*, 1999). At the observation site depth was 18 m and horizontal visibility averaged 15 m. Cleaner gobies of the genus *Elacatinus*, the most specialized cleaning fishes of the tropical western Atlantic (Colin, 1975; Sazima *et al.*, 1997), were notably absent at the Manoel Luís Reefs, although juvenile individuals of the French angelfish *Pomacanthus paru*, and porkfish *Anisotremus virginicus*, were occasionally recorded cleaning.

Procedure

Cleaning activity of the station-based sharksucker was observed directly while scuba-diving, and we focused on cleaning events, i.e., the period of association between a single cleaner and a single host which begins with inspection and/or physical contact and ends when cleaner or client withdraw (Johnson and Ruben, 1988). Records were done during two consecutive days. Total lengths (TL) of both the cleaner and its clients were estimated visually and estimates were checked against collected specimens (Sazima *et al.*, 1998).

RESULTS

At the reef we recorded juvenile sharksuckers (15-20 cm TL) attached to large individuals of the queen triggerfish *Balistes vetula*, the black margate *Anisotremus surinamensis* and the snappers *Lutjanus cyanopterus* and *L. jocu*, all of them site-attached reef fishes with limited home ranges (pers. obs., July 1998).

One juvenile *E. naucrates* (about 15 cm TL) tended a cleaning station that consisted of a portion of a shipwreck poised on the reef. Cleaning stations generally are situated in prominent or otherwise visible portions of the reef (Feder, 1966; Potts, 1973; Colin, 1975; Sazima *et al.*, 1998, in press), this being the case of the sharksucker station. The sharksucker was first recorded when approaching and cleaning a terminal phase scarid parrotfish, *Sparisoma* aff. *viride* (about 45 cm TL), which was posing in an oblique head-up posture with its tail touching the bottom (see Potts, 1973 and Losey, 1971 for classification of client poses).

The sharksucker inspected and cleaned mostly the flanks of its client, a behaviour recorded for less specialized cleaners such as species of the labrid genera *Halichoeres* and *Thalassoma* (Hobson, 1976; Van Tassell *et al.*, 1994; Sazima *et al.*, 1998). The next day, another terminal individual of the same client species and size was recorded being cleaned at the shipwreck station, but upon our approach the parrotfish began to slowly swim away from the station, with the sharksucker still cleaning its body. The cleaner left the parrotfish, swam away for about 5 m, but reapproched the client a little later and resumed cleaning. Eventually the sharksucker left the moving client and took refuge in the shipwreck. An individual of *B. vetula* was later recorded posing at the station but the sharksucker was not in view.

DISCUSSION

Randall (1962, 1967) recorded a small *E. naucrates* (size not stated) with its head into the gill opening of a large parrotfish, at the Bahamas. Although this author did not mention further details, we suspect that his record may be an additional instance of cleaning by a station-based juvenile sharksucker. A photographic record of a juvenile sharksucker cleaning a stoplight parrotfish, *Sparisoma viride*, in a popular account on artificial reefs (Gonsalez, 1999) is reminiscent of the station-based cleaning described here. Several cleaner species are known to practice this feeding habit only as juveniles (Limbaugh, 1961; Van Tassell *et al.*, 1994; Sazima *et al.*, 1998, in press), and the tending of cleaning stations by sharksucker may be restricted to juvenile individuals.

The tenure of a defined station, the seeking of this station by soliciting fish clients, and the approaching and cleaning behaviour performed by the juvenile sharksucker qualify it as a station-based cleaner, even if temporary. Station-based cleaning was previously unsuspected for the riding echeneids, and may be very localised in space or time, or be a rare event restricted to a few juvenile individuals. Cleaning habit restricted either to a few individuals within a population, or to a particular population, is recorded for some fish species (Hobson, 1976; Van Tassell *et al.*, 1994), and this may also be the case of *E. naucrates*. The absence of specialized cleaners other than juvenile french angelfish (see Sazima *et al.*, in press) at the Manoel Luís Reefs may be one reason for the fish clients seeking the sharksucker services and posing for it at defined portions of the reef. One aim of this paper is to call for further observations on juvenile *E. naucrates* in reef habitats to disclose whether the station-based cleaning habit is a widespread but rare event, or a role restricted to a few individuals, sizes, and/or sites.

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